NON-COMPLIANCE, PROFITABILITY, AND TECHNOLOGY: ALL THINGS EU ETS

Rakin Rahman, Staff Reporter, Port Technology International, interviewing **Shik Sundar**, Vice President of Sales, Sofar Ocean

In this interview, we will discuss the EU ETS and its aim to address climate change. We will also explore the broader implications and impacts of the newly imposed regulation on the shipping industry. Specifically, we will consider the repercussions that shipping companies could face if they do not comply with the EU ETS, as well as the role of technology in ensuring compliance. Lastly, we will talk about the factors that shipping companies should take into account in order to balance profitability with environmental responsibility.

Can you give us a summary of the EU ETS and its goals in addressing climate change?

The EU has been proactive in regulating various industries to reduce emissions within its economic region. Carbon trading schemes have long been in place for other sectors, and this year marks the implementation of similar measures for the shipping industry. This entails financial penalties for emissions associated with cargo traffic entering or leaving the EU.

There are two main impacts to consider. In the short term, this translates to a mild fuel tax for shippers, prompting them to adjust by slowing down vessels when fuel prices rise. Despite this adjustment, overall capacity in the shipping network is unlikely to change significantly. While there may be minor effects felt by freight forwarders and those involved in moving goods in and out of the EU, the impact on end customers is expected to be minimal. Container lines may experience slight delays, and ports might see a reduction in port calls in the short term.

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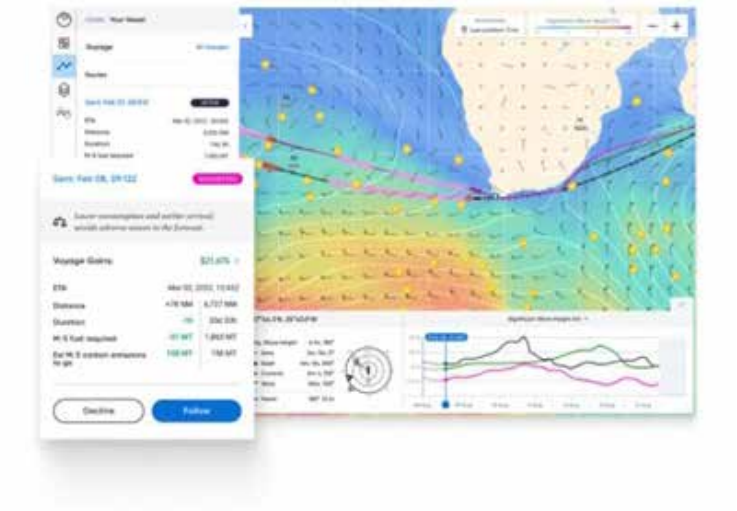
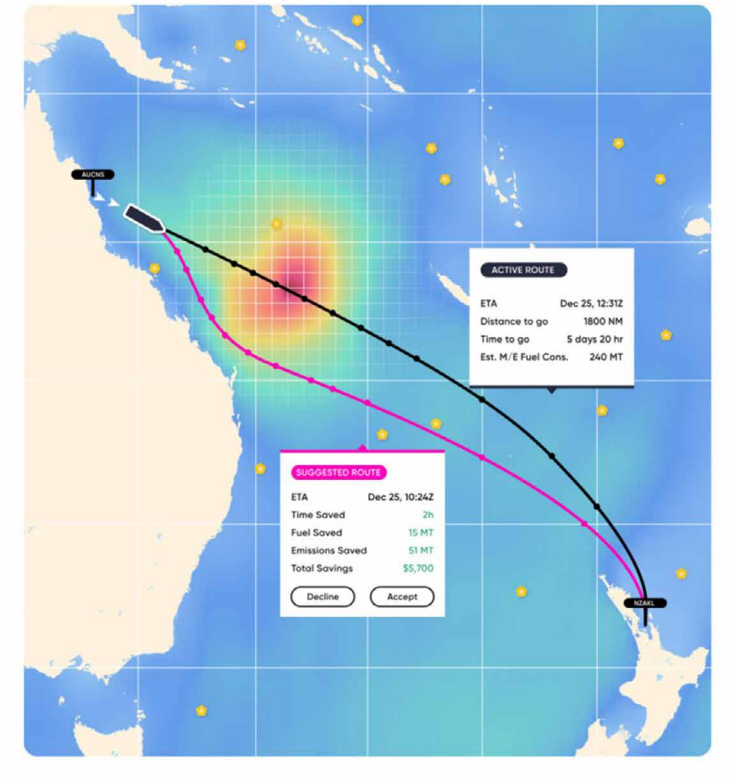
Looking ahead, the aim of such regulations is to incentivise the adoption of technologies that improve vessel efficiency, whether through reducing operating expenses or capital expenditures. This suggests a long-term push towards more sustainable shipping practices.

Could you elaborate on the potential consequences of EU ETS non-compliance?

In this inaugural year, it's likely that the focus will primarily be on imposing financial penalties as part of a learning process. It's noteworthy that major customers of container lines are facing mounting pressure from both market demands and stakeholders to reduce emissions throughout their supply chains, particularly concerning scope 3 emissions. This pressure may lead them to scrutinise container lines' compliance with the EU ETS and potentially prompt them to switch carriers or tonnage accordingly.

I speculate that this year will see minor financial penalties for non-compliance, given the learning curve involved and as we move forward, we'll gain a clearer





understanding of the broader business ramifications. However, there seems to be a recognition of the need for some leniency to allow member states and carriers to adapt to such a significant transformation within the shipping industry.

Given these challenges, what is your perspective on the significance of adopting new and innovative adaptive strategies within the maritime sector?

The shipping industry is under significant scrutiny due to its high contribution to emissions, comprising about 3 per cent of anthropogenic emissions. This proportion is often likened to the emissions of entire economies like Japan or Germany, despite the shipping sector's smaller scale compared to these countries' GDPs. Consequently, there's a pressing need to reduce emissions intensity. The EU ETS serves as another catalyst for change. In the short term, many of our customers are factoring EU ETS costs into their freight rates for port calls within or connected to the EU economic zone.

These new costs have prompted Sofar's customers to make internal adjustments using our Wayfinder voyage optimisation platform. Specifically, they've applied a slightly higher cost for port calls in the EU. If fuel prices rise and freight rates increase proportionally, vessel speed will remain constant during port calls, maintaining the same volume. However, if they don't pass these costs onto customers, speeds might decrease, resulting in a slight drop in global volume to the EU zone. This could lead to fewer port calls and reduced cargo traffic overall.

It's a learning phase, and they're experimenting with different approaches. One strategy is optimising voyage routes based on weather resistance, dynamically adjusting speed and course. Traditionally, containerships aimed to travel as fast as possible for the first two-thirds of the voyage to ensure timely arrival at ports with narrow windows. Now, they're exploring alternative terminal options after the initial call.

The traditional strategy of maintaining high speeds for the initial part of the voyage to ensure timely arrival within the safety window isn't the most efficient approach. Operating at such speeds incurs high fuel consumption due to increased friction. This just-in-time arrival concept has long been recognised, but advancements in technology now enable container shippers to better gauge weather conditions, the primary factor affecting vessel resistance during ocean travel. By dynamically adjusting speed based on anticipated resistance levels, ships can optimise fuel consumption, particularly during periods of lower resistance.

This approach ensures a more cost-effective and fuel-efficient voyage, mitigating potential additional expenses associated with EU emissions taxes on fuel. Embracing voyage optimisation represents a philosophical shift and requires trust

in its accuracy, especially given the historical uncertainty surrounding weather forecasts.

Weather prediction, however, is improving. Satellites are more advanced and the number of sensors in the ocean has increased. At Sofar, we've deployed hundreds of our Spotter buoys across the global ocean; each day, these buoys collectively make more than 1.5 million real-time ocean observations, data points that we use to produce the superior weather forecasts that power Wayfinder. Better weather forecasts have been embraced to reduce uncertainty, making it easier for container shippers and the wider shipping industry to adopt a variable RPM and waypoint strategy.

Could you elaborate on the importance of using data-driven decision making to tackle the challenges presented by EU ETS non-compliance and other environmental regulations?

I want to emphasise that the past decade was marked by considerable uncertainty, particularly in marine weather forecasting. While forecasting on land and in the atmosphere has greatly improved due to advancements like small satellites, marine forecasting has lagged behind. Despite the wealth of sensor data available, forecasting for ocean conditions remains a challenge.

CubeSATs standardised the size and format of payloads sent into space, leading to significant innovations in sensing technology. This advancement particularly improved atmospheric sensing. However, ocean sensing has lagged due to the challenging ocean environment, which makes it difficult for man-made objects to survive for extended periods. Innovations in ocean sensing have included shrinking buoy size, making sensors solar-powered and robust enough to withstand harsh conditions, and enabling them to collect data and transmit it through networks like Iridium.

In the past five years, there has also been a significant increase in the development of autonomous undersea and submersible vessels. This surge has led to a substantial growth in ocean data collection, making real-time data available. Contrasting this with some of my own personal experiences from just over a decade ago, such as an Atlantic crossing in 2011, highlights the remarkable evolution. Back then, with limited information and only an Iridium phone for communication, being in the middle of the ocean felt isolating. Now, with technological advancements, accessing detailed sea state information from any point in the ocean is possible, akin to the evolution of mapping technologies like Google Maps and Apple Maps, which thrive on abundant data points on land.

Previously, the ocean lacked this comprehensive data. Now, we're gathering detailed information, similar to understanding traffic on land. Consequently, we can more effectively guide vessels in terms of both their course and speed to navigate congestion and obstacles. However, it all begins

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with establishing a data-rich environment. The subsequent step involves converting this data into valuable insights and advantages for ship operators.

What role do you envision technology playing in facilitating these operational strategies and ensuring compliance with environmental regulations?

Regarding environmental regulations, step one is creating data abundance. Step two involves turning this abundance into an information advantage. Then, step three is translating this advantage into a business edge. This entails understanding business and customer workflows.

For instance, in container trade, shipowners and operators factor in fuel costs for EU port calls and their trading strategy. Additionally, these same stakeholders operate a costly asset. The asset's value is linked to its Carbon Intensity Indicator (CII) score, which measures emissions per tonne of cargo per nautical mile. Maintaining a good CII rating is essential. Therefore, understanding fuel and emissions performance across all sea states translates into a business advantage, which, when leveraged in light of regulatory frameworks and long-term planning, helps ensure asset integrity and value. Technologies like Wayfinder help shipowners and operators make these informed decisions and comply with regulations.

What key factors should maritime companies take into account when aiming to harmonise profitability with environmental responsibility within the present regulatory framework, particularly in light of the EU ETS?

I believe these regulations will have a long-term impact, the extent of which remains to be seen. However, in the short to medium term, there's a clear opportunity to accelerate the adoption of technologies such as voyage optimisation. These technologies incur minimal costs but can significantly impact operational expenses, particularly in fuel savings.

As fuel represents the industry's largest OPEX cost, approximately $100 billion annually, efficiency improvements are crucial. Enhancing efficiency, especially during the open ocean segments where most fuel is consumed, requires a strategic approach informed by better information.

Additionally, there's a fundamental need for an energy transition, which entails substantial capital expenditure. This transition may involve shifting to zero-carbon fuels like ammonia, which necessitates the development of a new fuelling infrastructure or significant adaptation of the current one, both of which are costly endeavours.

There are emerging propulsion methods like wind propulsion, which hold promise in significantly reducing fuel expenses. However, implementing these technologies entails substantial operational expenditure and testing costs. Currently, it's uncertain which wind technology will prove most effective, but all require considerable investment. This investment must offer a substantial return to justify the expenditure, necessitating changes in crew training, operations, and technical maintenance.

These are long-term energy transition initiatives requiring significant upfront investment and infrastructure changes, likely spanning over a decade. However, operational expense improvements can yield immediate savings in fuel costs, which, when reinvested into larger energy transition initiatives, can compound over time. For instance, saving 4 per cent to 6 per cent annually on fuel expenses from operational changes can lead to significant cumulative savings, providing funds for further investment and yielding compounding returns.

By focusing on OPEX optimisation, carriers can reduce fuel consumption, meet customer demand, and accelerate the development and adoption of CAPEX-intensive green technologies.

ABOUT THE AUTHOR:
Shik Sundar is the Vice President of Sales at Sofar Ocean. He leads all commercial activity, overseeing sales of Sofar's Wayfinder voyage optimisation platform, Spotter Platform, and planetary-scale ocean data.

ABOUT THE COMPANY:
Sofar connects the world's oceans to power a sustainable future by unlocking ocean data at scale. With hundreds of Spotters deployed globally, they collect 1.5 million real-time observations daily, enabling accurate marine weather forecasts. Their high-accuracy data aids maritime shipping and supports marine research and sustainable solutions. Based in San Francisco, Sofar's team comprises engineers, ocean scientists, and business professionals.